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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,317	04/20/2004	Hidekazu Moriyama	119294	2578
25944	7590	09/13/2007		
OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER LIN, JAMES	
			ART UNIT 1762	PAPER NUMBER
			MAIL DATE 09/13/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/827,317	MORIYAMA, HIDEKAZU	
	Examiner	Art Unit	
	Jimmy Lin	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 6 and 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/18/2007 has been entered.

Claim Objections

2. Claim 3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Parent claim 1 already requires the order of steps as recited in claim 3.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita et al. (U.S. Publication 2001/0001050) in view of Igari et al. (JP 10-337882, as provided by the Applicant) and Watanabe et al. (U.S. Patent 4,966,480).

The rejection is cited in the Office Action filed 2/22/2007.

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '050 in view of Igari '882 and Watanabe '480 as applied to claim 1 above, and in further view of Ozaki et al. (JP 60-139454).

The rejection is cited in the Office Action filed 2/22/2007.

6. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '050 in view of Naniwa et al. (U.S. Publication No. 2002/0038611) and Caren et al. (U.S. Publication No. 2003/0011656).

Miyashita discloses a method of forming an EL film pattern by an ink-jet printing method (abstract). The ink-jet printer has a liquid droplet ejection head 110. Banks 105 are formed on the substrate according to the film pattern and functional liquid is disposed into the space between the banks (Fig. 1).

Miyashita does not explicitly teach that a conduit is attached to the ink-jet head, but a conduit must necessarily be connected to the head in order to supply the functional liquid because Miyashita teaches that a hole 27 in the ink-jet head is used to supply the liquid ([0086]; Fig. 10).

Miyashita does not explicitly teach a passage, including the ink-jet head and the conduit, with various solvents. However, Miyashita does teach the problem of the nozzle clogging due to the attachment of solid components of the functional liquid [0096]. Naniwa teaches a method of preventing the clogging of an ink-jet head [0133]. A circulation-type cleaning solution can be used wherein a functional liquid tank 209 and a cleaning solution tank 208 can be connected to a conduit leading to an ink-jet head ([0199]; Fig. 2). A cleaning solution can be flown through the passage during a cleaning step [0186], to thereby prevent clogging of the ink-jet head. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the cleaning method of Naniwa in the ink-jet head of Miyashita. One would have been motivated to do so in order to have prevented clogging of the nozzles. Additionally, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the arrangement of the functional liquid tank, the cleaning solution tank, and the ink-jet head as shown in Fig. 2 of Naniwa in the ink-jetting method of Miyashita with a reasonable expectation of success because Naniwa teaches that such an arrangement is operable in the art.

Naniwa teaches that an ink solvent can be circulated or fed through the passage (i.e., filling the passage with the solvent contained in the functional solution) where the dormant state continues or where a trouble is generated in the image quality [0185], but does not explicitly teach the order of feeding the cleaning solution and feeding the ink solvent. However, the selection of any order of performing process steps is *prima facie* obvious in the absence of new

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or unexpected results. See, for instance, *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have performed the steps of feeding the cleaning solution and feeding the ink solvent in any order, including the order as claimed, with a reasonable expectation of success because one of ordinary skill in the art would not have anticipated any unexpected results from performing the steps of feeding liquid in a particular order.

Miyashita and Naniwa does not explicitly teach that the feeding of the cleaning solution comprises 1) filling the passage with purified water and 2) filling the passage with a solvent dissolving both a solvent contained in the functional solution and the purified water. However, Caren teaches a method for cleaning an ink-jet head [0010]. The cleaning method includes flowing a wash fluid through the ink-jet head and then rinsing with a rinse fluid [0017]. The wash fluid should be a liquid that will dissolve the solid materials remaining in the printhead [0048]. Because Miyashita teaches that the EL materials can be water-soluble [0070], water as the particular wash fluid of Caren would be able to dissolve any solid. Caren teaches that water is a preferred wash fluid because it has great solvating properties and is available in high purity (i.e., purified water) at low cost [0049]. A rinse fluid is then fed through to remove any remaining wash fluid residue. The rinse fluid can be deionized water, pure alcohols, and mixtures thereof [0051]. The rinse fluid should be a liquid that can be readily vaporized [0051]-[0052]. Both the deionized water and pure alcohol would necessarily dissolve the ink solvent and the purified water since all the liquids are hydrophilic solvents. Because Caren teaches an operable method of cleaning an ink-jet head that ejects water-soluble functional liquid, it would have been obvious to one of ordinary skill in the art at the time of invention to have used the cleaning solution and rinsing fluid of Caren in the cleaning step of Miyashita and Naniwa with a reasonable expectation of success.

As to filling the passage with the functional solution, forming banks corresponding to the film pattern on the substrate, and disposing the liquid droplets into grooves between the banks with the ink-jet head, such steps would occur when the ink-jet head is to be used again after the cleaning steps.

Claim 4: Miyashita teaches that the precursor is conjugated by heating [0052] and the resulting polymer layer has electrical conductivity [0064]-[0065].

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miyashita '050 in view of Naniwa '611 and Caren '656 as applied to claim 1 above, and further in view of Ozaki '454.

Miyashita, Naniwa, and Caren are discussed above, but do not explicitly teach that a storage solution is used in the ink-jet head.

Ozaki teaches that it is well known to use a storage solution in an ink-jet head to prevent clogging (abstract). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have used a storage liquid in the ink-jet head of Miyashita between printing operations. One would have been motivated to do so in order to have further prevented clogging of the nozzle.

Miyashita, Naniwa, and Caren do not explicitly teach that the cleaning process is used on the ink-jet head that is filled with the storage solution. However, Ozaki teaches that the storage solution is an aqueous ethylene glycol solution, but Miyashita never teaches that such a solution is a suitable solvent used for depositing EL materials. In other words, ethylene glycol would be an unwanted compound in the EL layer. Because EL layers are well known to be sensitive to contaminants (i.e., unwanted compounds), it would have been obvious to one of ordinary skill in the art at the time of invention to have performed the cleaning process between the use of a storage solution and the deposition of the EL materials of Miyashita.

Response to Arguments

8. Applicant's arguments filed 7/18/2007 have been fully considered but they are not persuasive.

Claims 1 and 3-5 as rejected over Miyashita '050, Igari '882, and Watanabe '480:

Applicant argues on pg. 3-4 that (a) Igari and Watanabe, under the Office Action's rationale, only at best discloses a single cleaning step, (b) one of ordinary skill would not have modified the single cleaning step of the applied references to be three cleaning steps, and (c) the use of the specific claimed steps are not supported by the applied references taken as a whole and thus can only have resulted in the use of impermissible hindsight using Applicant's own disclosure. However, the repetition of steps is obvious especially if it produces a predictable

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result. Take for example, if a teaching of cleaning the dishes only once removes oil from the dishes, then cleaning them multiple times would further clean the dishes and further remove oil. Likewise, the repetition of the cleaning steps as suggested by Igari and Watanabe would further clean the nozzles, thereby further preventing the nozzles from becoming clogged.

Applicant argues on pg. 4 that even if it is deemed to have been obvious to use three cleaning steps as alleged by the Office Action, the use of the specific steps of cleaning by purified water, cleaning by a solvent dissolving the solvent of the functional solution and purified water, and then filling the passage with the solvent of the functional solution as claimed are not disclosed or suggested by the applied references. However, Miyashita teaches that water can be the particular solvent of the functional solution, and Igari and Watanabe as a whole would suggest to use the solvent of the functional solution as the particular cleaning solution. In this case, all the solvents used in the above-recited steps would be water. As to the purity of water, the mere purity of a product, by itself, does not render the product unobvious (see MPEP 2144.04.VII.).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER